

Report of surveys on the early stages of butterflies in the Nanling area (4)

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Abstract The early stages of nine species, *Neope yama*, *Neope muirheadii*, *Ypthima conjuncta*, *Neorina patria*, *Neptis speyeri*, *Neptis beroe*, *Pantoporia bieti*, *Ussuriana michaelis* and *Satarupa nymphalis* are described from the Nanling area, Guangdong, China.

Key words Guangdong(China), larva, Nanling Nature Reserve, *Neope muirheadii*, *Neope yama*, *Neorina patria*, *Neptis beroe*, *Neptis speyeri*, ovum, *Pantoporia bieti*, pupa, *Ussuriana michaelis*, *Satarupa nymphalis*.

Introduction

More than 500 species of butterflies are known from Guangdong, China, and most of them are recorded from the Nanling mountain area.

We made research trips twice a year to study the morphology of larvae, food plants, the habits of early stages, the flight of adults in summer and hibernation in winter in the Nanling area (Harada *et al.*, 2009, 2010, 2011). We have examined many species in the field and added new and interesting information to what was previously known.

Methods

The expeditions were carried out from the autumn of 2006 to the winter of 2009. During these periods the ova, larvae, pupae and adults of many species of butterflies were recorded with field notes and photographed.

Some living female specimens were kept in cages to examine the egg laying habits.

Result of Surveys

Notes on some species of particular interest are described as follows:

(1) *Neope yama* (Figs 1–6)

Habitat: Along open valleys at an altitude of about 1000m.

Larval food plant: *Phyllostachys* sp. / Gramineae

Ovum: Ova were laid in a small batch of up to 15 eggs on the underside of a leaf; they were pale green and similar to the leaves.

Larva: The larva feeds gregariously, and disperses from the fourth instar stage; it is brown in color with a dark dorsal line and some subdorsal spots; the full-fed larva descends to the ground and pupates in a flimsy nest amongst fallen leaves in late autumn.

Pupa: Brown and overwinters.

Remarks. This is the first report on the early stages of this species.

(2) *Neope muirheadii* (Figs 7–16)

Habitat: Along open valleys at an altitude of about 1000 m.

Larval food plant: *Phyllostachys* sp. / Gramineae

Ovum: Ova were obtained from a female in a sleeve placed over bamboo branch and tied round the stem.

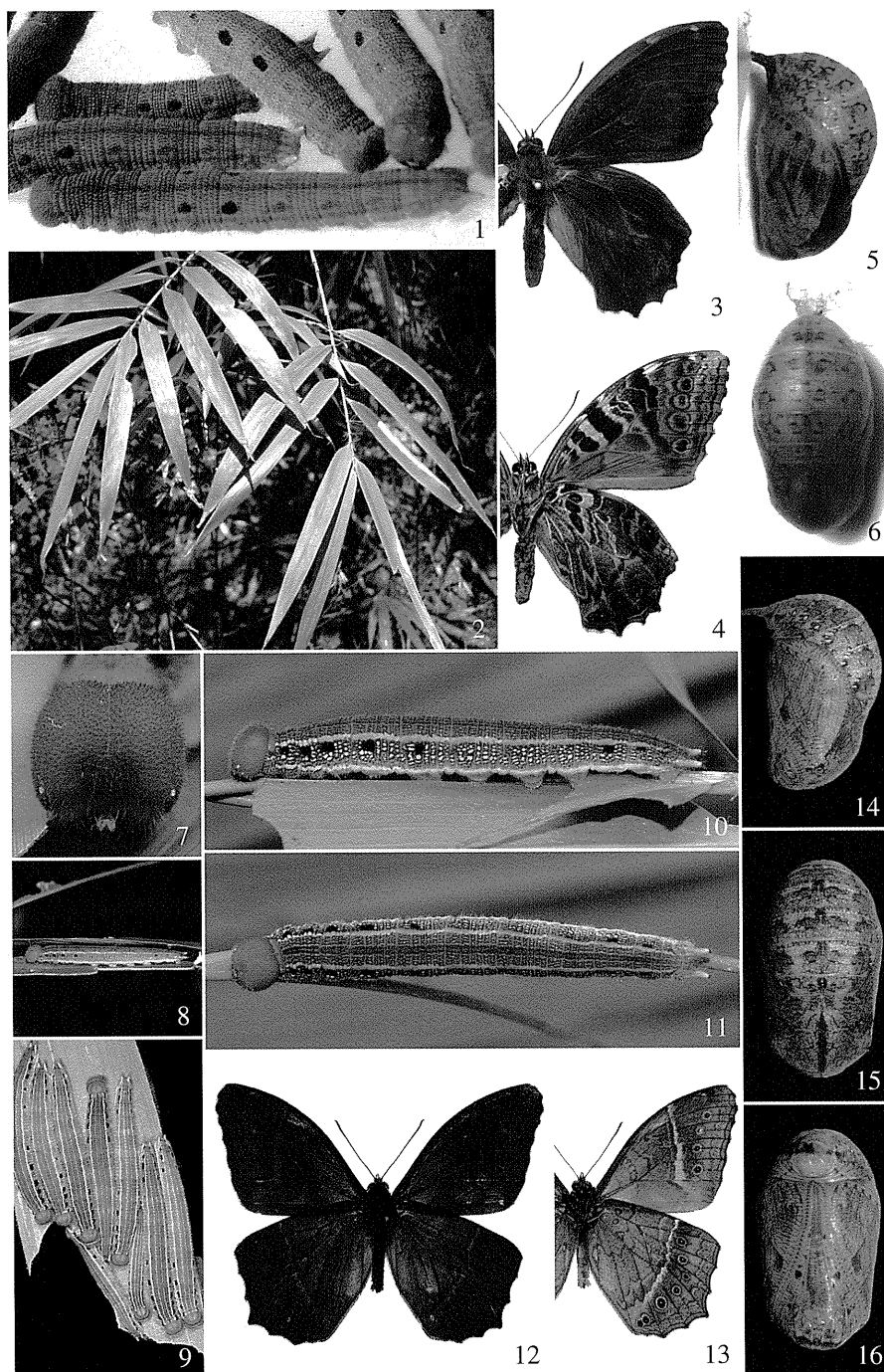
The ova were laid in batches of more than twenty, which were arranged regularly; they were semi-transparent and pale green.

Larva: The larva feeds gregariously, and disperses from the fourth instar stage; the fifth instar larva produces a retreat using silk and feeds from it; it is dark green with brownish yellow subdorsal lines, and differs from the larva from Taiwan described by Igarashi and Fukuda (2000: pl.140); the full-fed larva descends to the ground and pupates in a flimsy nest amongst fallen leaves in late autumn.

Pupa: Brown with dark markings and overwinters.

(3) *Ypthima conjuncta* (Figs 17–27)

Habitat: Well lit edge of forest along open valleys at an altitude of about 800~1000 m.



Figs 1-6. *Neope yama*. 1: Last instar larva. 2: Food plant (Gramineae *Phyllostachys* sp.).

3-4: Male. 5-6: Pupa.

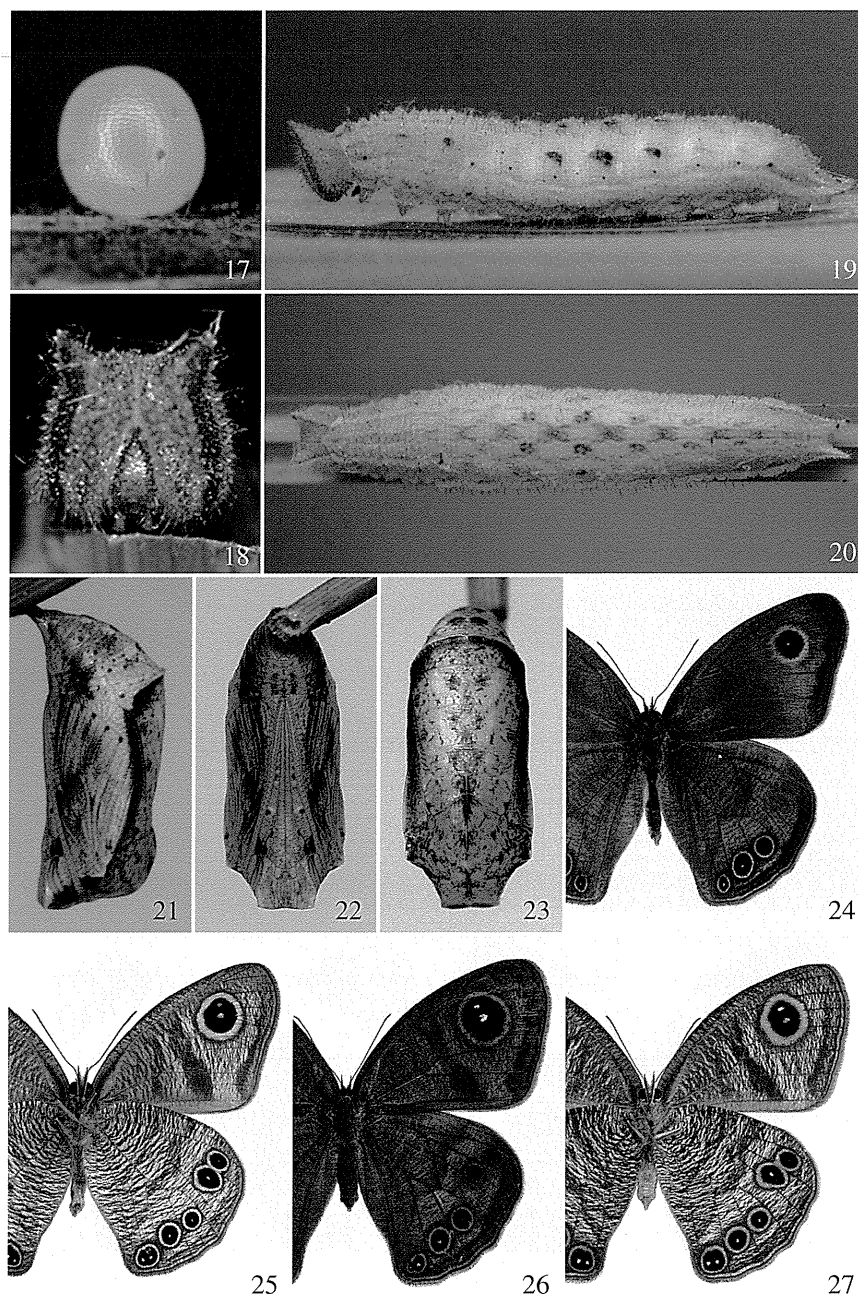
Figs 7-16. *Neope muirheadii*. 7: Last instar larva head. 8: Last instar larva nest. 9-11: Last instar larva. 12-13: Male. 14-16: Pupa.

Larval food plant: Grasses / Gramineae

Ovum: Ova were taken from a female placed in a plastic rearing cage with grasses and were laid singly on the lower

surface of leaves, dried leaves and stalks; they were pale white.

Larva: Young leaves of gramineous plants were best for



Figs 17–27. *Ypthima conjuncta*. 17: Ovum. 18: Last instar larva head. 19–20: Last instar larva. 21–23: Pupa. 24–25: Male. 26–27: Female.

successful rearing; the newly hatched larva was pale brown and changed to reddish brown after feeding; the third instar larvae entered hibernation and did not feed until spring.

Pupa: Pale brown with blackish patterns; 12 mm in length.

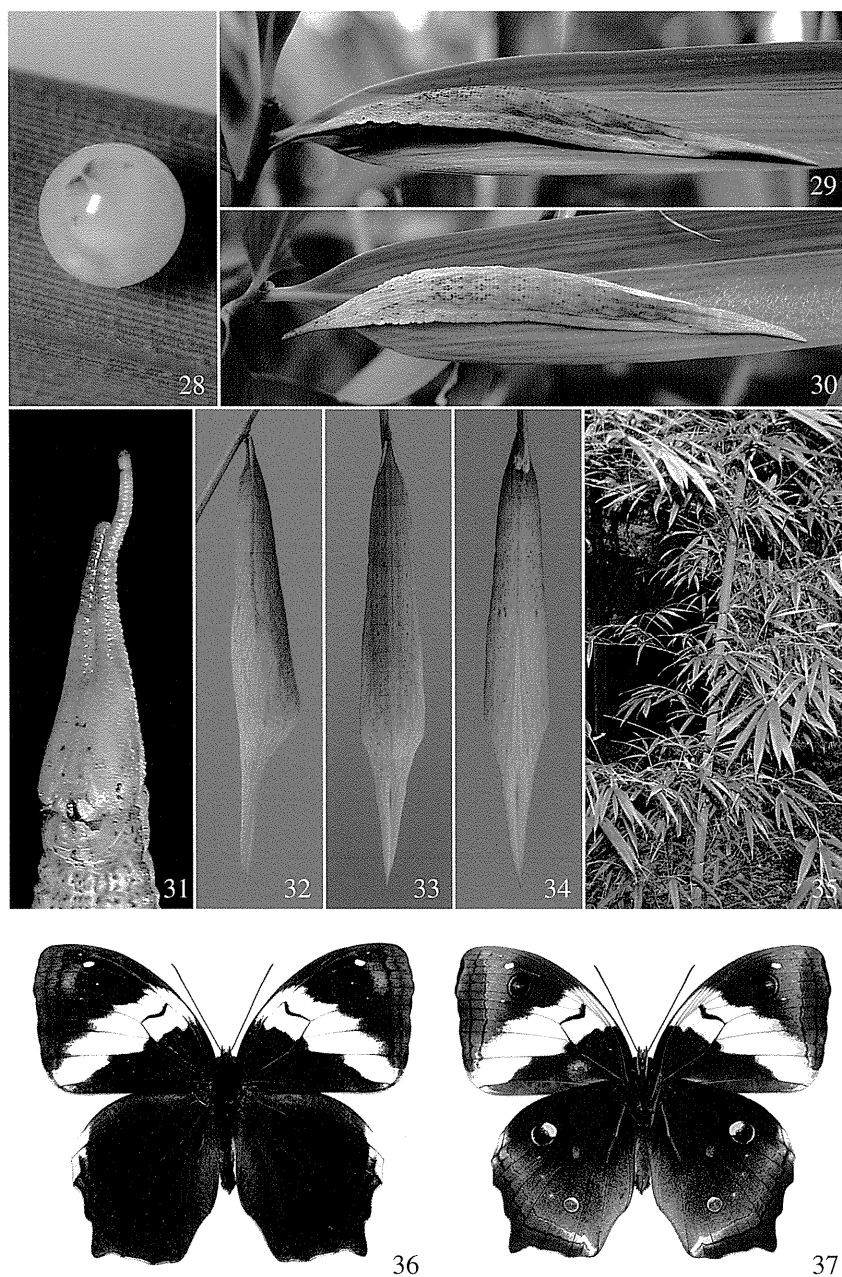
Remarks. This species emerges in June and flies rapidly.

(4) *Neorina patria* (Figs 28–37)

Habitat: Flies rapidly on roadside at the edge of the forest.

Larval food plant: *Phyllostachys* sp. / Gramineae

Ovum: The ovum is laid singly on the lower surface of leaves; it is semi-transparent.



Figs 28–37. *Neorina patria*. 28: Ovum. 29–30: Last instar larva. 31: Last instar larva head. 32–34: Pupa. 35: Food plant (Gramineae *Phyllostachys* sp.). 36–37: Male.

Larva: The young larva takes up its position on the underside of the leaf, but from the third instar larva on the upper surface of the leaf facing the stalk. The color is dark green until the third instar, then changes to brown. Body length reached about 76 mm in the last (fifth) instar.

Pupa: About 64 mm in size; pupation takes place low down amongst its foodplant; the pupation site is on the twigs near the base of the leaf.

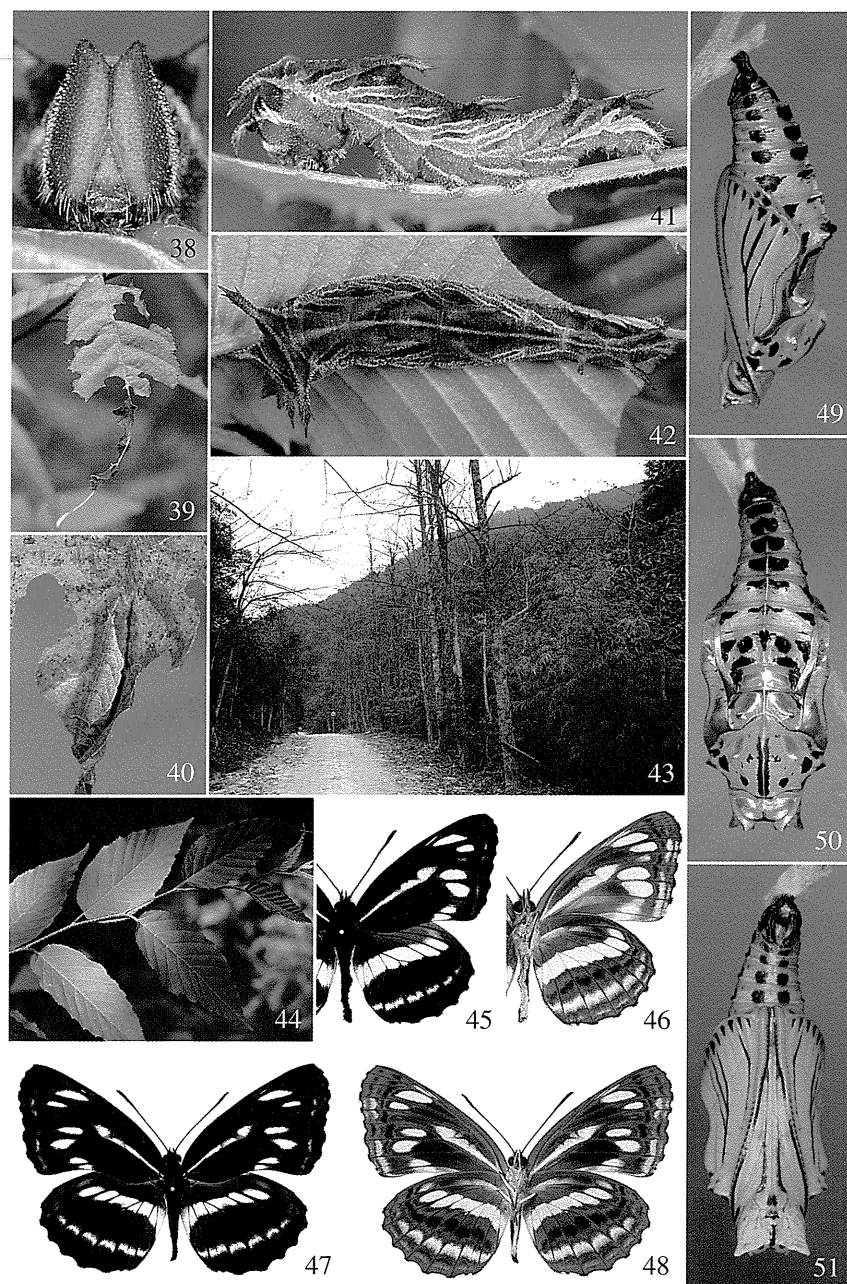
Remarks. This is the first record of the early stages of this species.

(5) *Neptis speyeri* (Figs 38–51)

Habitat: Roadside slopes along open valleys.

Larval food plant: *Carpinus hupeana* / Betulaceae

Ovum: The ovum is laid singly on the apical upper surface



Figs 38–51. *Neptis speyeri*. 38: Last instar larva head. 39: 3rd. instar larva. 40: Overwintering larva. 41–42: Last instar larva. 43: Habitat. 44: Food plant (*Carpinus hupeana*). 45–46: Male. 47–48: Female. 49–51: Pupa.

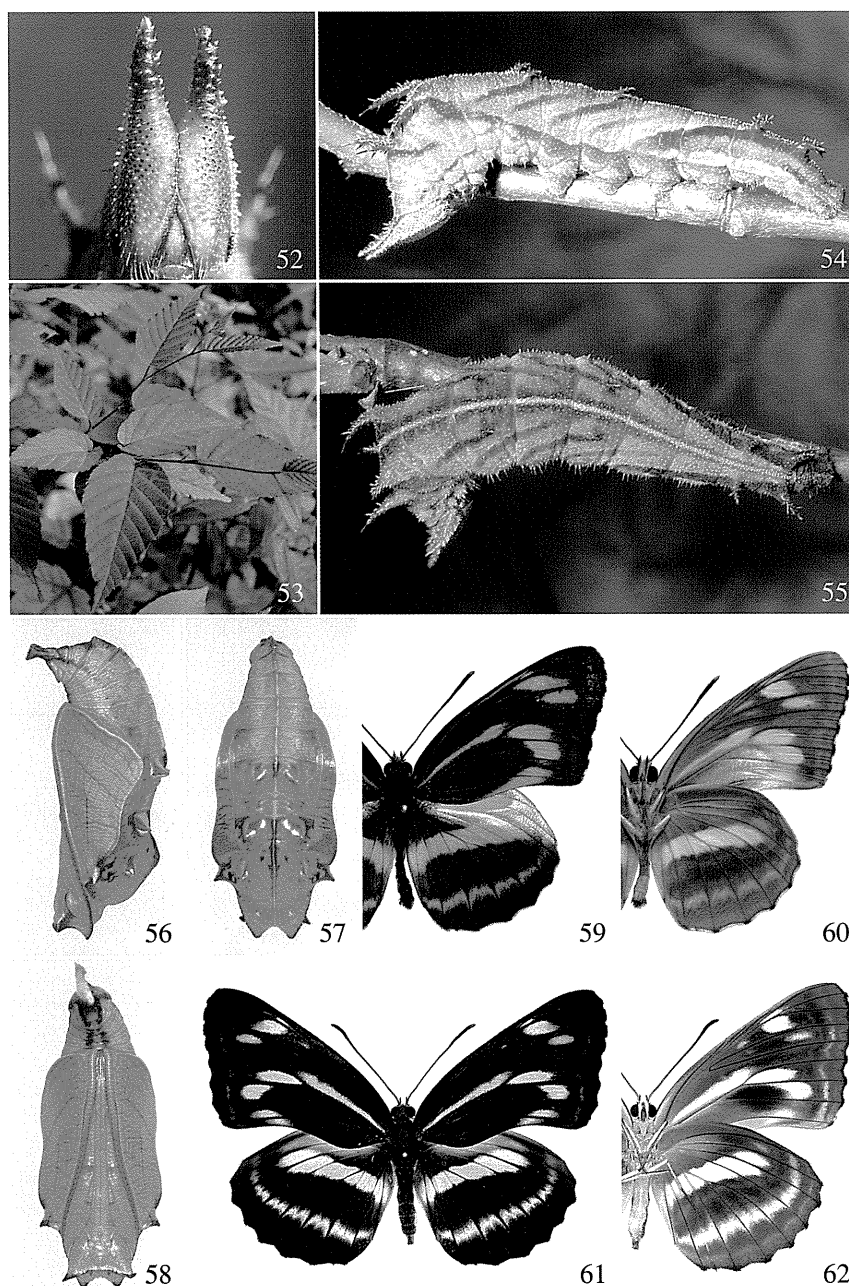
of a leaf; it is bluish green.

Larva: Until the third instar the young larva leaves the mid-rib uneaten and makes a frass chain at its tip; the yellowish brown larva rests in the chain and is camouflaged within it; the full grown third instar larva enters hibernation on the middle of a dry leaf, spinning a strong silken girdle to the stem to prevent leaf-fall; the larva becomes active

the following spring, then begins feeding and turns yellowish green after moult.

Pupa: Green in color and suspended from a silken pad on the undersurface of a leaf or from a young twig.

Remarks. This is the first record of the early stages of this species.



Figs 52–62. *Neptis beroe*. 52: Last instar larva head. 53: Food plant (*Carpinus hupeana*).
54–55: Last instar larva. 56–58: Pupa. 59–60: Male. 61–62: Female.

(6) *Neptis beroe* (Figs 52–62)

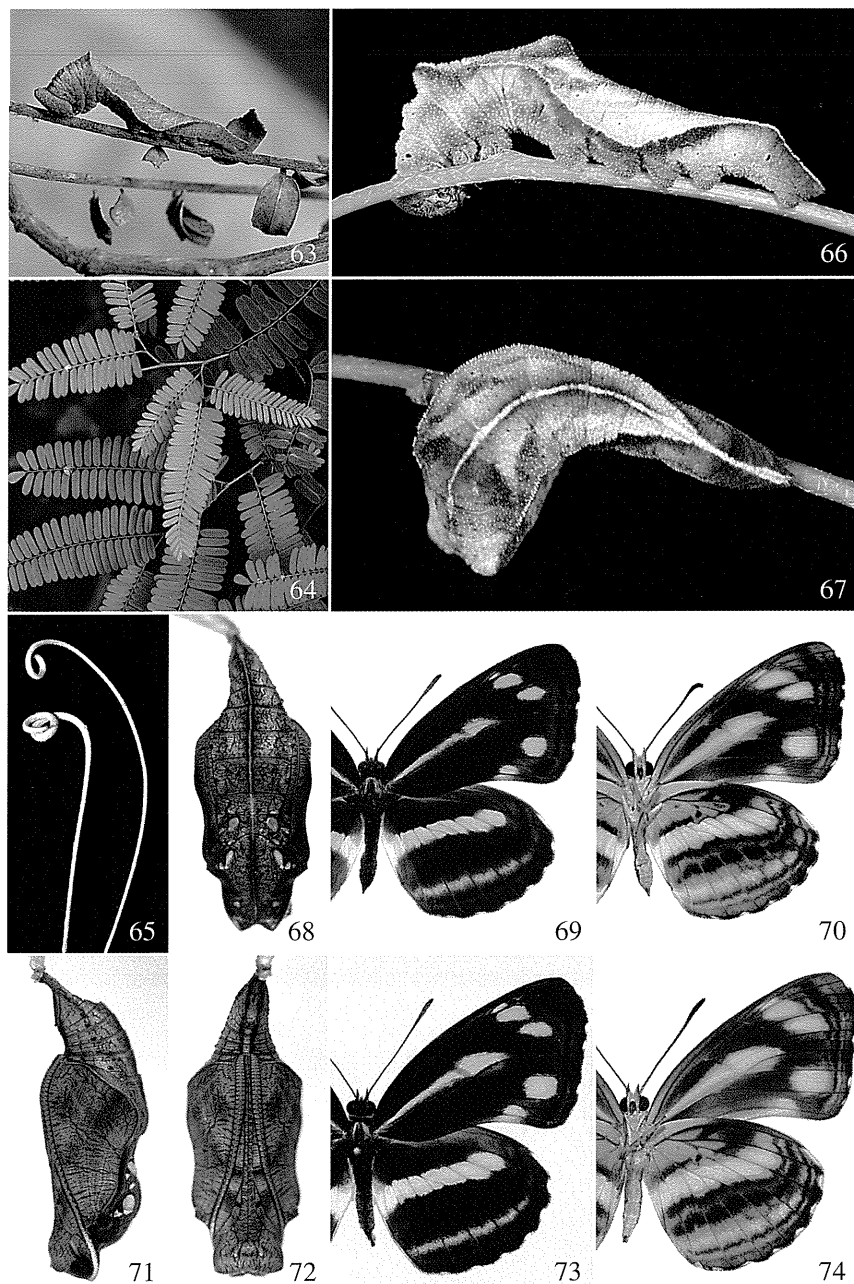
Habitat: Roadside slopes along open valleys.

Larval food plant: *Carpinus hupeana* / Betulaceae

Ovum: The ovum is laid singly on the apical upper surface of a leaf; it is bluish green, turning to olive green in a few days, and hatches in about a week.

Larva: The larva is often found on the top of branches

about 1.5–3.0 m above ground; until the third instar the young larva leaves the mid-rib uneaten and makes a frass chain at its tip; the yellowish brown larva rests in the chain and is very well camouflaged within it; the full-grown third instar larva enters hibernation on the middle of a dry leaf, attaching a strong silken girdle to the stem to prevent leaf fall; in spring, the larva begins feeding and changes to yellowish green after moult.



Figs 63–74. *Pantoporia bieti*. 63: Over wintering larva. 64–65: Food plant (*Acacia sinuata*). 66–67: Last instar larva. 68–70: Pupa. 71–72: Male. 73–74: Female.

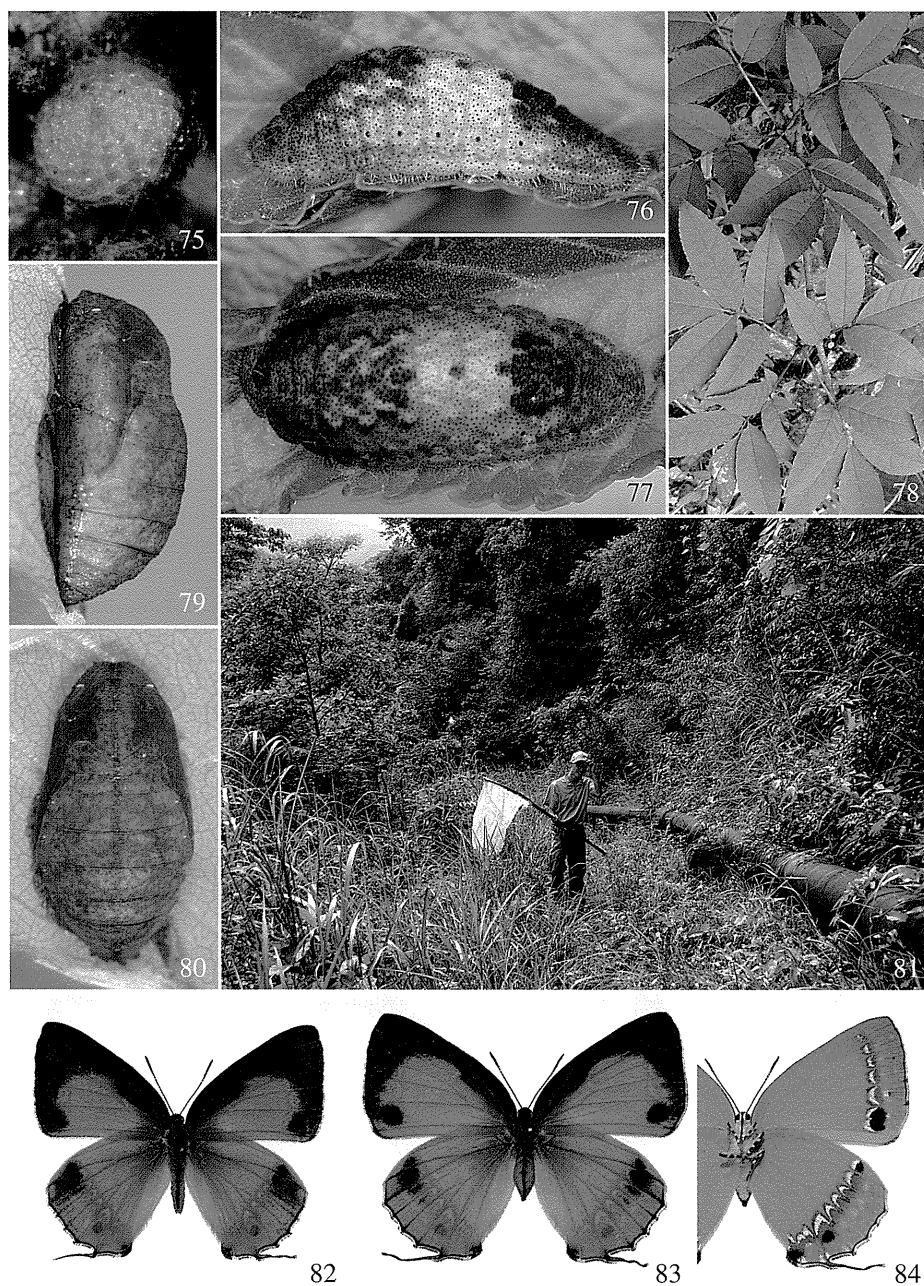
Pupa: Green in color and suspended from a silken pad on the undersurface of a leaf or from a young twig.

(7) *Pantoporia bieti* (Figs 63–74)

Habitat: Roadsides along open valleys where the food plants flourish.

Larval food plant: *Acacia sinuata* / Leguminosae

Larva: The larva slightly cuts the mid-ribs of pinnate leaves apically and damages them, then rests hanging downwards on the main mid-rib and eats the leaves from the tip; the larva enters hibernation among these damaged leaves. This “hibernaculum” is easy to find in the field. However the color of the larva forms a camouflage among the damaged leaves and it is often difficult to find the larva among them.



Figs 75–84. *Ussuriana michaelis*. 75: Ovum. 76–77: Last instar larva. 78: Food plant (*Fraxinus chinensis*). 79–80: Pupa. 81: Habitat. 82: Male. 83–84: Female.

Pupa: Brown in color and suspended from a twig.

Remarks. This is the first record of the early stages of this species. This species was misidentified as *P. hordonia* in report (1).

(8) *Ussuriana michaelis* (Figs 75–84)

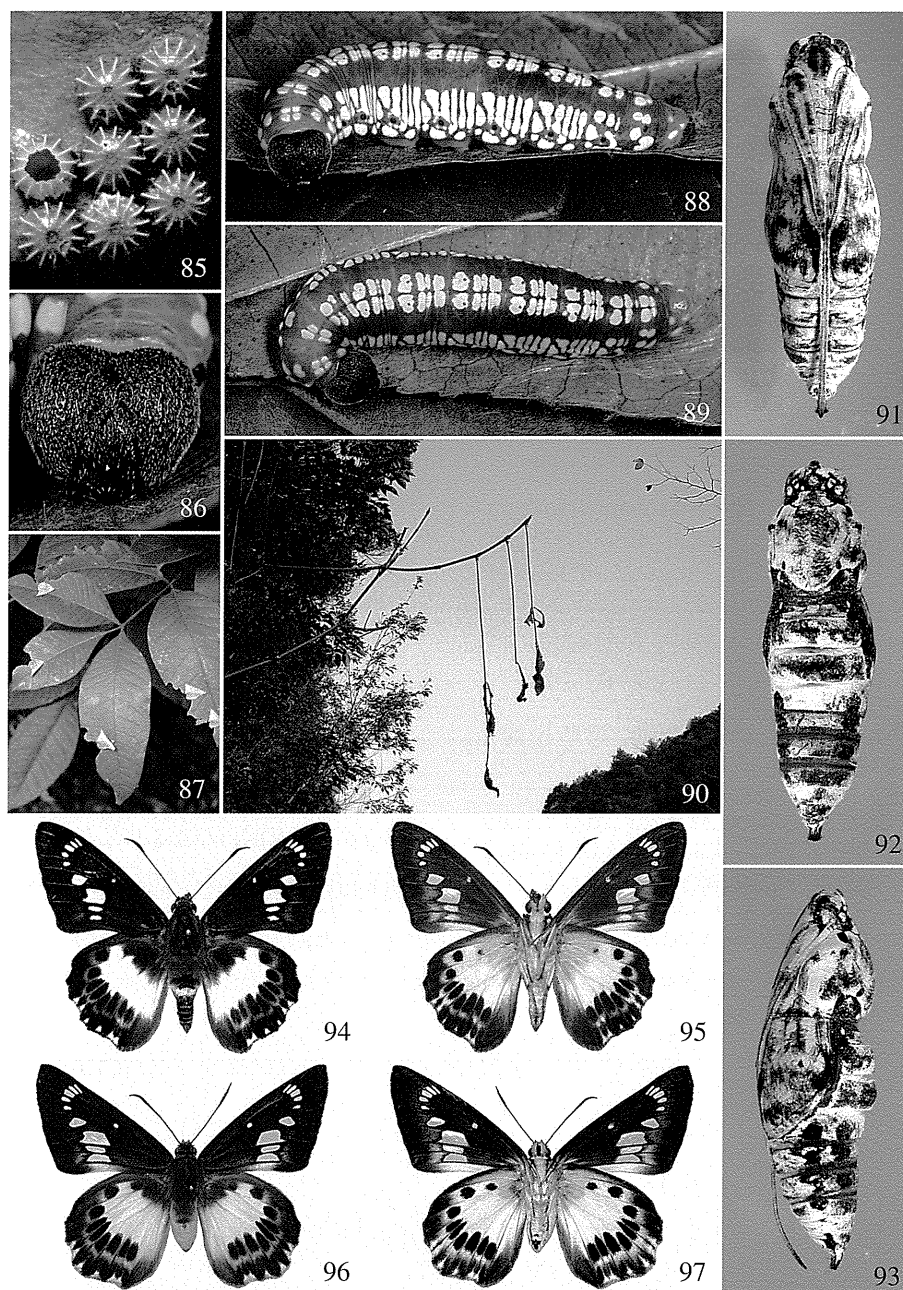
Habitat: Along valleys at an altitude of about 500–1200 m.

Larval food plant: *Fraxinus chinensis* / Oleaceae

Ovum: Ova are laid singly or in small batches of up to ten on a lower trunk, often in a deep crevice or on the underside of loose bark; they are pale bluish white.

Larva: The larva rests at the junction of twigs or in a hollow.

Pupa: The pupa was never found on the underside of the



Figs 85–93. *Satarupa nymphalis*. 85: Ovum. 86: Last instar larva head. 87: 1st. instar larva nest. 88–89: Last instar larva. 90: Over wintering larva nest. 91–93: Pupa. 94–95: Male. 96–97: Female.

leaf or on the branch; pupation may occur on the ground.

(9) *Satarupa nymphalis* (Figs 85–93)

Habitat: Flies at the edge of the forest and in open areas in the forest.

Larval food plants: *Phyllodendron amurense*, *P. chinensis* and *Fagara ailanthoides* / Rutaceae

Ovum: Ova are laid in small batches of up to ten or more on the upper surface of the leaf.

Larva: Immediately on hatching the larva forms a cut fold as a shelter on a leaf nearby; sometimes several shelters may be found on a single leaf; the third instar larva forms a “hibernaculum” with the compound leaves apically, spinning silk to fix the rachis firmly to the branch to prevent

leaf-fall; this peculiar hibernaculum is reddish-yellow in color; the fourth and fifth instar larva makes a nest by joining the leaves together.

Pupa: About 30 mm in length; pupation occurs in the nest.

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摘 要

広東省南嶺地域における蝶の幼生期の調査 (4) (原田基弘, 大島良美, 吉田良和, 王 敏)

我々は2006年の秋から広東省北部に位置する南嶺山地周辺において蝶の幼生期探査のプロジェクトを続けてきた。その成果を順次報告しているが、調査研究途上の種類もあり、今後も機会を得てこのプロジェクトは継続していくつもりである。

今回の調査報告ではクロキマダラヒカゲ、ウラキマダラヒカゲ、ヤマナカウラナミジャノメ、シロオビムカシヒカゲ、スパイヤーマスジ、ベロエミスジ、ビエツキンミスジ、コンゴウシジミ、コンゴウセセリについて記述し、生態およびそれらの食樹の写真を示した。

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